Non-technical Abstract. Late infantile neuronal ceroid lipofuscinoses (LINCL) is a fatal disease that affects children and there are no known treatments for it. There are only 200-300 children in the USA at any one time with the disease. LINCL is an inherited disease that results from defects in the CLN2 gene. The CLN2 gene specifies a protein (tripeptidyl peptidase-I, TPP-I), which is lacking in children with LINCL. This results in nerve cell death because the nerve cells cannot destroy used proteins. The protein, which is normally recycled builds up and blocks the way the cell works. Children with LINCL are born normal, but an increase in nerve cell death leads to decline in the way the brain functions and then leads to death, often by age 8 to 12. Since the disease is due to an abnormal gene, the objective of this study is to add a normal copy of the gene to the brain of affected children in to try to reverse nerve cell death. The gene will be carried by a virus called adeno-associated virus made harmless by removing all its genes, which are replaced by a normal copy of the CLN2 gene. The virus used for the therapy is called "$AAV2_{cu}hCLN2$". This clinical study will test the safety and possible benefit of putting $AAV2_{cu}hCLN2$ into the brains of children with LINCL. The proposed study will include 10 subjects and will be divided into two parts. Group A, to be studied first, will include 4 subjects with the severe form of the disease. Group B of the trial will include 6 subjects with a moderate form of the disease. For both groups, the patients will be assessed by neurological tests and brain scans before and at assigned times after the treatment to see if there are changes. The major questions to be answered by the study are: (1) is the method of giving the CLN2 gene by AAV2cuhCLN2 safe; and (2) does the method of giving the CLN2 gene by $AAV2_{cu}hCLN2$ result in slowing of the disease process and brain cell death in children with LINCL?